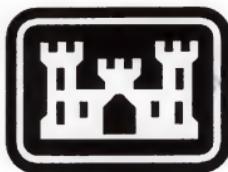


Scoping Summary

McDonald Gold Project Environmental Impact Statement



MISSOULA PUBLIC LIBRARY

MISSOULA, MONTANA



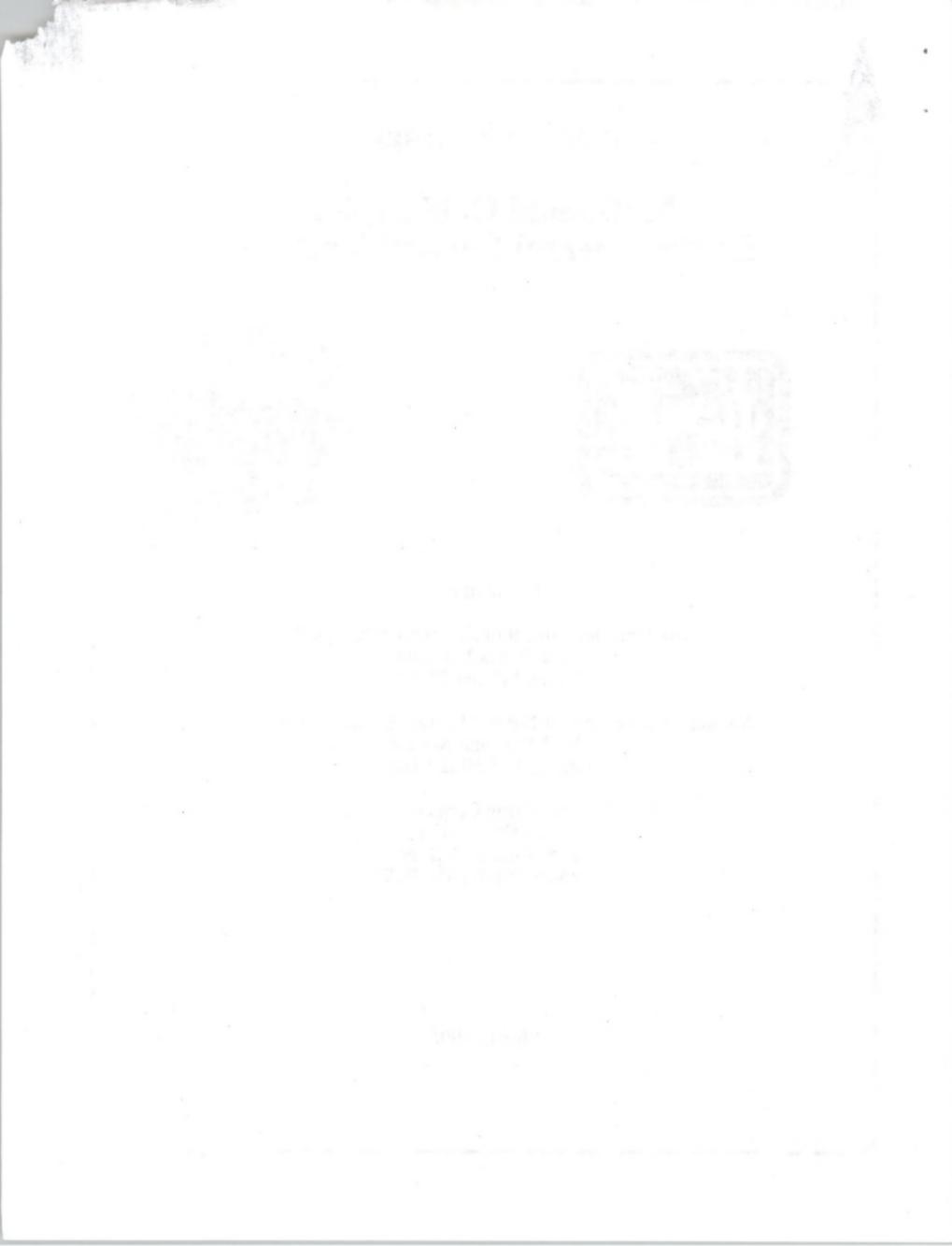
Prepared by:

Montana Department of Environmental Quality
1520 E. Sixth Avenue
Helena, MT 59620-0901

Montana Department of Natural Resources and Conservation
1625 Eleventh Avenue
Helena, MT 59620-1601

United States Army Corps of Engineers
Omaha District
215 North 17th Street
Omaha, NE 68102-4978

March, 1996



MCDONALD GOLD PROJECT – SCOPING SUMMARY

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
PROJECT SUMMARY	1
NEPA, MEPA AND THE SCOPING PROCESS	1
2.0 METHODS	4
OVERVIEW OF SCOPING ACTIVITIES	4
Scoping Meetings	4
Written Comments	5
PRELIMINARY COMMENT ANALYSIS	6
ISSUES ANALYSIS & ALTERNATIVES DEVELOPMENT	6
3.0 SUMMARY DESCRIPTION OF THE ISSUE	6
ISSUE CATEGORIES	6
PRELIMINARY ISSUE STATEMENTS	7
Water Resources	7
Geochemistry	9
Soils and Reclamation	9
Vegetation and Wetlands	10
Wildlife	10
Fisheries/Aquatics	10
Cultural Resources	11
Noise and Air Quality	11
Visual/Aesthetics	11
Recreation and Wilderness	12
Socioeconomic	12
Land Use and Access	14
Transportation	14
Hazardous Materials	15
Emergency Response	15
Property Rights	15
Water Rights	15
Health And Safety	15
Environmental Policy and Planning	16
Geotechnical Engineering	16
Mine and Process Engineering	16
Risk Assessment	17
Monitoring and Enforcement	17
Quality-Based Attributes	17
Alternatives	17
Cumulative Impacts	18
Miscellaneous	18



1.0 INTRODUCTION

This summary provides an overview of issues identified in the initial scoping phase of the McDonald Gold Project Environmental Impact Statement. Section 1.0 summarizes the project and provides an overview of the MEPA/NEPA process. Section 2.0 discusses how public comments have been incorporated into this summary, and briefly addresses the next steps in the process. Section 3.0 provides a summary description of the issues. A detailed scoping report may be reviewed at the Department of Environmental Quality in Helena.

Project Summary

The Seven-Up Pete Joint Venture (SPJV), a partnership between Phelps Dodge Mining Company (PDMC) and CR Montana Corporation, has submitted an application to the Montana Department of Environmental Quality (DEQ) and the Montana Department of Natural Resources and Conservation (DNRC) for development of the McDonald Gold Project.

The proposed project would be located in Lewis and Clark County, Montana, approximately forty miles northwest of Helena and eight miles east of Lincoln. The 5,400 acre permit area would be located near the confluence of the Landers Fork and Blackfoot Rivers (figures 1-1 and 1-2). Gold and silver would be extracted by conventional open-pit mining and cyanide heap leaching.

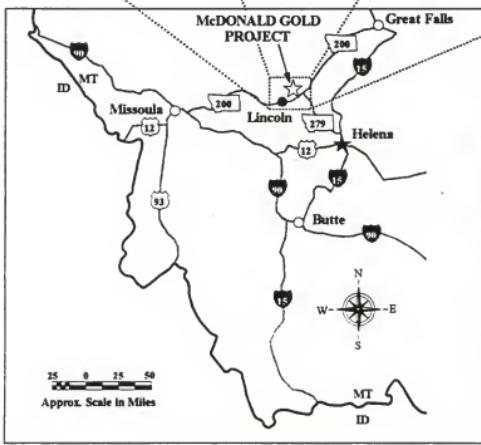
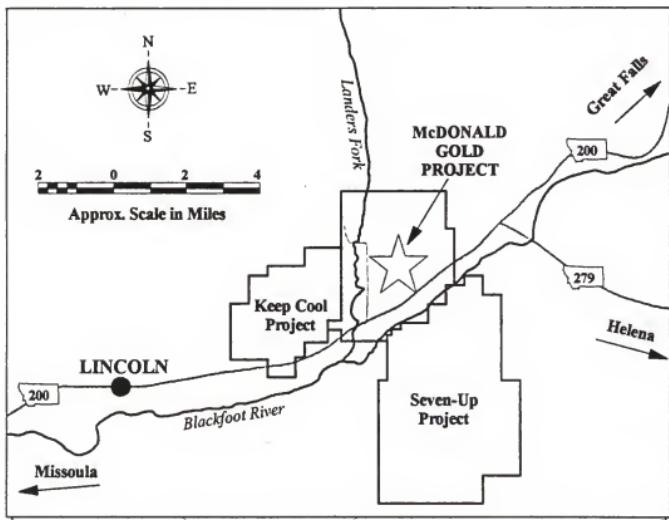
Two mining scenarios have been presented by the Joint Venture -- both of which are tied to the market price of gold. The expected case, based on a \$375 per ounce market price, would require mining 645 million tons of rock over 14 years. The expanded case, which was submitted at the request of the Department of Environmental Quality, is based on a \$600 per ounce market price. This scenario would require mining 980 million tons over 18 years. Reclamation activities would continue for 7-8 years after cessation of mining.

Two lined leach pads would be constructed to hold 100 percent of the ore produced over the project life. Ore would be blasted and hauled either directly to the run-of-mine leach pad (Site C) or to a crushing facility and then to the crushed ore leach pad (Site A). Barren rock would be hauled to one of two rock piles (Site D or E). Select barren rock would also be used for various construction needs, such as solution collection impoundments, leach pad foundations, and road surfacing. Dilute cyanide solution would be percolated through the ore to dissolve the precious metals. The "leachate" containing gold and silver would then be collected and processed by carbon adsorption, carbon-stripping, and electrowinning to recover the dissolved gold and silver. Dore' bullion, a mixture of gold, silver, and small amounts of other metal impurities, would be produced on-site and shipped to an off-site refinery for final processing.

NEPA, MEPA, and the Scoping Process

The National and Montana Environmental Policy Acts (NEPA/MEPA) require preparation of an EIS if any action taken by the State of Montana or the federal government might "significantly affect the quality of the human environment." The Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, and U.S. Army Corps of Engineers have determined that the proposed McDonald Gold Project may have significant environmental impacts; therefore, preparation of an EIS is necessary to fulfill the requirements of both laws. DEQ has retained the services of a third-party consultant (Morrison-Maierle Environmental Corporation of Helena) to assist in preparing the EIS.

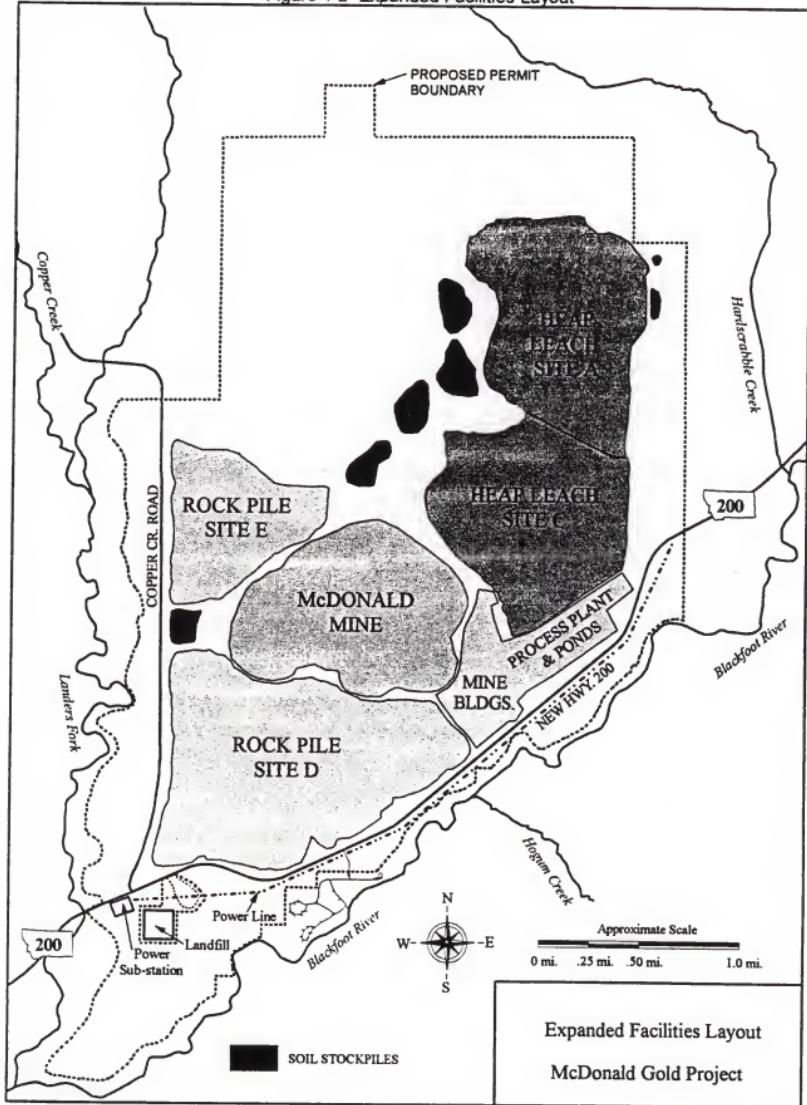
Figure 1-1 Project and Property Location Map



Project and Property Location Map

McDonald Gold Project

Figure 1-2 Expanded Facilities Layout



Scoping is required under NEPA and MEPA as a means of identifying the range of issues to be addressed in the EIS. It is an information gathering exercise typically conducted early in the development of the EIS to ensure comprehensive impact analysis. It serves five main purposes: 1) identifies significant issues to be analyzed, 2) provides a basis for identifying alternatives to the proposed action, 3) suggests the level of detail with which issues and alternatives should be addressed in the EIS, 4) provides a basis for identifying mitigation measures, and 5) provides a basis for eliminating issues and alternatives from detailed study where appropriate.

Scoping activities for the McDonald Gold Project have included:

- Conducting public scoping meetings in Lincoln, Great Falls, Missoula, and Helena
- Conducting agency scoping meeting in Helena
- Collecting written comments from members of the public
- Collecting written comments from local, state, and federal agencies
- Identifying issues and generating preliminary issue statements from the meetings and written comments

2.0 METHODS

Overview of Scoping Activities

Scoping Meetings

One agency scoping meeting was held in Helena on October 11, 1995. Forty-five representatives from the following government agencies attended the meeting:

- Montana Department of Environmental Quality
- Montana Department of Natural Resources and Conservation
- Montana Department of Fish, Wildlife, and Parks
- Montana Department of Transportation
- State Historic Preservation Office
- Hard Rock Mining Impact Board
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish & Wildlife Service
- U.S. Forest Service -- Helena National Forest
- Lewis and Clark County

A total of 275 comments were logged during the agency scoping meeting.

Public scoping meetings were held in Lincoln, Great Falls, Missoula, and Helena. Representatives from the Seven-Up Pete Joint Venture were available to answer questions regarding technical details. Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, and U.S. Army Corps of Engineers staff presented a summary of the proposed project and the permitting process to the public. An open-house followed to elicit comments from the public. Attendance and comment totals were as follows:

Meeting Location	Meeting Date	Number of Attendees	Number of Comments
Lincoln, Montana	October 12, 1995	300-325	275
Great Falls, Montana	October 30, 1995	200-250	70
Missoula, Montana	November 1, 1995	350-375	124
Helena, Montana	November 2, 1995	200-250	90

Written Comments

Interested individuals and government agencies commented in writing throughout the initial scoping period. Most of the comment letters originated from the Lincoln, Great Falls, Helena, and Missoula areas. Letters were also submitted from other regions of Montana and as far away as Florida, New York, and California. Comment letters were received from the following agencies:

- U.S. Forest Service -- Helena National Forest
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish & Wildlife Service
- Montana Department of Fish, Wildlife, and Parks
- State Historic Preservation Office
- Montana Department of Transportation
- Hard Rock Mining Impact Board
- Cascade, Powell, Missoula, and Lewis and Clark Counties
- Cities of Helena, Missoula, and Great Falls.

DEQ, DNRC, and the Army Corps of Engineers have received 377 letters as of this printing. These letters generated approximately 3500 comments. Nearly two-thirds of these comments were redundant. Approximately 975 were identified as original comments and included in this summary. Additional letters will be reviewed upon receipt. If new issues are identified, they will be incorporated into the analysis as appropriate.

Preliminary Comment Analysis

The results of public scoping on the McDonald Project EIS were recorded using the following four-step, database-oriented approach:

- 1) The EIS consultant's project and/or resource managers reviewed the transcripts and identified comments or issues.
- 2) Generally stated comments were formulated into issues to ensure coverage throughout the process.
- 3) The team developed issue categories and preliminary issue statements to classify individual comments.
- 4) Issue categories, preliminary issue statements, and issues were logged into a tracking program for ease of access and source identification.

Issue categories, preliminary issue statements, and individual issues may be added, combined, modified, or deleted as the EIS progresses and the project's impact potential is defined.

Issues Analysis and Alternatives Development

This summary documents the results of the formal scoping process. No significance analysis has been conducted by the EIS consultant or the agencies involved in preparing the EIS. All of the issues and/or questions identified in the following pages will be presented to the EIS interdisciplinary team for review. The team will work with the various resource managers to determine significance and identify which issues are within the scope of the EIS and drive alternatives development. Certain comments may reflect personal biases, general opinions about mining or the mining industry, or policy issues. These types of comments are typically outside the scope of the EIS. Issues that are carried forth into the EIS will be evaluated in terms of the project's potential to affect a particular resource (e.g., wildlife, recreation, etc.) or a resource's potential to affect the project (e.g., geologic hazards, climate, etc.).

The following section describes the issue categories, preliminary issue statements, and specific issues identified during the scoping process. The term "impact" is used throughout the following discussions. It is important to understand that "impact" does not always carry a negative connotation. The EIS will consider both the positive and negative impacts of the McDonald Gold Project.

3.0 SUMMARY DESCRIPTION OF THE ISSUES

Issue Categories

Issue categories serve as the most general level of classification. Twenty-seven preliminary issue categories were defined as a result of comment analysis:

- Water Resources
- Geochemistry
- Wildlife
- Fisheries/Aquatics
- Vegetation and Wetlands
- Cultural Resources
- Soils and Reclamation
- Geology/Topography
- Noise/Air Quality
- Visuals/Aesthetics
- Recreation/Wilderness
- Socioeconomic
- Land Use/Access
- Transportation
- Emergency Response
- Water Rights
- Property Rights
- Intangibles
- Health and Safety
- Environmental Policy and Planning
- Geotechnical Engineering
- Mine and Process Engineering
- Risk Assessment
- Monitoring & Enforcement
- Hazardous Materials
- Cumulative Affects
- Alternatives
- Miscellaneous

Preliminary issue statements were then developed under each of the preliminary issue categories.

Preliminary Issue Statements

Water Resources

Impact of Mine Operations on Surface Water Quantity

Concerns are related to short- and long-term impacts of mining on surface water quantity. Issues identified include 1) impacts to surface flows in Alice Creek, Landers Fork, and the Blackfoot River from dewatering, future shutdown of the operational dewatering wells, and post-mining land uses, 2) impacts to consumptive and non-consumptive uses, and 3) the impact of direct withdrawals on the Landers Fork and Blackfoot River.

Impact of Mine Operations on Surface Water Quality and Characteristics

Concerns are related to short- and long-term impacts of mining on surface water quality. Issues focus on impacts to surface waters in the Blackfoot, Copper Creek, North Valley Creek, and Landers Fork from stormwater runoff, contaminated ground water, hazardous material spills, processing effluent, and cumulative effect of downstream developments. Concerns also relate to the potential for impacts to downstream waters including the lower Blackfoot and Clark Fork Rivers, as well as Milltown Reservoir. Specific contaminants mentioned include cyanide, nitrates, acid rock drainage, arsenic, antimony, cadmium, manganese, mercury, and zinc, to name a few. Other concerns focus on the changes to the characteristics of local and downstream surface waters including the impact of the mine on water temperature, hardness, and pH. Concern was expressed regarding the quality of the water in the proposed pit lake after cessation of mining.

Impact of Mine Operations on Ground Water Quantity

Concerns are related to short- and long-term impacts of mining on ground water quantity. Issues include 1) whether and to what extent ground water flows in the Landers Fork and the Blackfoot Valley alluviums would be impacted by dewatering and future shutdown of the dewatering wells, 2)

whether and to what extent consumptive and non-consumptive uses would be impacted on site and downstream, and 3) impact to private wells in the area (including Lincoln).

Impact of Mine Operations on Ground Water Quality and Characteristics

Concerns are related to short- and long-term impacts of mining on ground water quality. Principle areas of concern focus on issues associated with impacts to ground water in the Blackfoot and Landers Fork drainages from stormwater runoff, land application, highway maintenance, hazardous materials spills, infiltration of cutoff well water, process effluent, and sanitary sewage disposal from downstream developments. Issues were also raised regarding the potential for impacts to downstream ground water including the lower Blackfoot and Missoula's sole source aquifer. Specific contaminants of concern include nitrates, acid rock drainage, cyanide, elemental arsenic, antimony, cadmium, manganese, mercury, and zinc, to name a few. Other concerns focused on changes to the characteristics of local and downstream ground waters including the impact of the mine on water temperature, hardness, and pH. Substantial concern was expressed regarding impacts to ground water from the proposed pit lake after cessation of mining.

Impact to Ground/Surface Water Connections from Mine Activities

Principle concerns revolve around the impact of mine operations on surface water due to the local hydrologic conditions (including hydrologic/alluvial connections). Three key areas of concern include 1) impacts of pit dewatering on aquifers and the subsequent effects to surface flows, 2) seepage of contaminants from the mine leaking into ground water and daylighting in the Blackfoot or Landers Fork, and 3) land applied process water infiltrating into groundwater and impacting the Landers Fork.

Impact to Ground Water Hydrology

Concerns focus on the impact of dewatering and mining on ground water features and functions. Concerns include 1) ensuring an accurate understanding of the function and character of the fractured bedrock, 2) impact of dewatering on groundwater flows, 3) impacts to bedrock seeps and springs, 4) seasonal water table fluctuations, and 5) stabilization of the local ground water hydrology after cessation of mining.

Impact to Surface Water Hydrology

Concerns are related to short- and long-term impacts of mining on surface water hydrology. Principle areas of concern focus on 1) flow regimes in the Blackfoot River, Landers Fork, and Hardscrabble Creek, 2) substrate conditions during low flows, 3) intergravel environments and 4) fluvial geomorphology. Other areas of concern include the impacts of highway realignment on fluvial geomorphology and the substrate character of the Blackfoot River as well as drainage characteristics.

Impact of Water Management Systems

Principle concerns revolve around the effectiveness of the proposed water management system to minimize impacts to water resources. Concerns include 1) effects of reduced seepage rates under the facilities on stormwater runoff, 2) impacts of excess water in the leaching circuit, 3) impact of changes to the pit dewatering system on overall water budget for the site, 4) impact of snow removal and storage on runoff, and 5) effectiveness of leak detection and mitigation.

Impact of Catastrophic Storm Event on Blackfoot and Landers Fork

The short- and long-term impacts of a catastrophic storm event on the Landers Fork and Blackfoot Rivers are of primary concern. Issues identified include whether the Blackfoot and Landers Fork would be adversely impacted in the event of a catastrophic storm event or high amounts of snowmelt and runoff. The basis for concern involves a storm event that exceeds the capacity of the water management system.

Geochemistry*Impact of Mine-Related Acid Rock Drainage*

Primary Concerns are related to short- and long-term impacts of the mine on production of acid rock drainage. Concerns focus on 1) the probability of acid production, 2) its impact on wildlife and water quality, and 3) contingency plans for addressing it.

Impact of Local Geology and Hydrology on Pit Water Chemistry

Concerns focus on 1) impact to pit water chemistry from accumulation of sediments on the pit floor, 2) seasonal turnover of the pit lake and the effect on pit water chemistry, and 3) changing redox conditions as the mine pit walls become exposed.

Impact of Mine Development on Ambient Water Chemistry

Concerns revolve around the impact of mine development on ambient water chemistry. Key areas include 1) impact of water being circulated from the alluvium back into the alluvial aquifer through the infiltration galleries, 2) impact of the geochemical characteristics of local rock units, and 3) long-term impacts of ineffective heap neutralization.

Soils and Reclamation*Impacts on Reclamation Success*

Issues include 1) reclamation effectiveness and its ability to provide adequate wildlife habitat and prevent long-term water quality degradation, 2) stability of the post-closure pit wall, and 3) the impact of insufficient topsoil replacement.

Impacts to Soil Resources

The main concerns are whether enough soil can be stockpiled and the effects of long-term storage on soil viability. Other issues include impacts of soil disturbance on human health and impacts to the soil from mine-related contaminants.

Impact of the Mine on Soil Stability and Geologic Features

Concerns involve impacts to the bedrock fracture network by pit development and loading from heap leach pads and rock piles. Included within this category is the impact to soil erosion rates both on and off site.

Impact of the Mine on Topographic Features

The main concern is the short- and long-term impact of the mine on natural topography.

Vegetation and Wetlands*Impact to Vegetation*

Concerns include 1) noxious weed management, 2) impacts to sensitive and T&E species, 3) revegetation success standards, and 4) effectiveness of the proposed revegetation plans in achieving reclamation success.

Impact to Wetlands and waters of the U.S.

Concerns are related to short- and long-term impacts of mining operations on wetlands and waters of the U.S. Key areas include 1) impact of pit dewatering and the water management system on streams and wetlands in and adjacent to the project site, 2) impacts to functions and values of streams and wetlands, 3) impacts to riparian habitat and wetlands adjacent to streams and rivers, 4) impacts of pollutants and sedimentation on streams and wetlands, 5) wetland mitigation, and 6) impacts to long-term water quality in streams and wetlands.

Wildlife*Impact of Mine Development on Wildlife Health and Population Characteristics*

Concerns focus on impacts to wildlife from mine-related activities such as blasting, lights, operational noise, traffic, earthwork, effluent, ore and waste rock toxicity, and long-term disturbance of habitat. Other concerns include direct, indirect, and cumulative impacts to wildlife – especially threatened and endangered species – from disturbed water sources, entry into pond and pit areas, poaching, cyanide spray drift, increased human encounters, and residual salts.

Impact of Mine Development on Wildlife Habitat, Migration, and Distribution

Main concerns are short- and long-term impacts of the mine on wildlife habitat and migration corridors. Areas of concern include 1) impact to winter range carrying capacity, 2) impact to elk calving season, 3) impacts to elk, moose, black bear, grizzly bear, mule deer, and white-tailed deer summer use of the project area, 4) impact to wildlife habitat outside the project area, and 5) effectiveness of the proposed post-mining revegetation plan on minimizing long-term direct, indirect, and cumulative impacts to wildlife.

Fisheries/Aquatics*Impact of Mine Development on Fish and Their Habitat*

Concerns include the impact of mine development on bull and westslope cutthroat trout habitat. Specific areas include 1) the impact of pit dewatering and changes in river flows due to the water management system, and upwellings, 2) impacts of water temperature changes, and 3) impacts of changes in water quality.

Impact of Mine Development on Fish Health, Population, and Distribution

Concerns include 1) impacts to the health, population, and distribution of fish from the operational water management system, influx of people in the valley and the potential increase in fishing pressure, shock waves from blasting and operations, and siltation, 2) impacts to bull trout and westslope cutthroat trout spawning, incubation, rearing, and migration, 3) bioaccumulation of toxins in fish, 4) impact of the mine on fishery recovery efforts, and 5) the impact of ARD, ammonia toxicity, heavy metals, or reagent contamination of surface waters.

Impact of Mine on Aquatic Life

Concerns are related to short- and long-term impacts of mining operations on aquatic life. Key areas include 1) the impact of chemical reagents, ARD, and heavy metals, 2) impact of dewatering, siltation, and changes in river flows on aquatic life and habitat, and 3) impact of nitrates from blasting and fertilization necessary for revegetation.

Cultural Resources*Impact to the Archaeological Value of the Region*

Concerns include the impact of the mine on traditional values and known cultural/archaeological resources in the area. Specific concerns include 1) impact to the Cummings Cabin, 2) impacts of increased people on resources, 3) impact to old Lincoln Highway, Lewis and Clark and Pokolara trails, and 4) impact on Native American archaeological sites and Traditional Cultural Practices areas.

Noise and Air Quality*Impact of the Mine on Air Quality*

Concerns include impacts of the mine on air quality in the Blackfoot and Landers Fork valleys. Specific concerns include fugitive emissions from mine operations, wind-blown particulates, cyanide drift, fumes, and conditions associated with harmful atmospheric conditions such as inversions and fog from the pit. Other issues include impacts to the nearby Class I airshed and the applicability of Prevention of Significant Deterioration (PSD).

Impact of Mine-related Noise on Surrounding Area

Key noise issues focus on impacts from drilling, blasting, crushing, and equipment operations on residents and wildlife. Other concerns include impacts from increased traffic on Highways 200 & 279 and the impact of mine-related noise on recreational experiences in the Bob Marshall and Scapegoat Wilderness areas and on local retreats.

Visual/Aesthetics*Impact to Visual Character of the Area*

These concerns include the impact of the mine on short- and long-term visual enjoyment of the area. Specific concerns include 1) impact of the open pit on visual enjoyment, 2) impact on scenic values

from key observation points, 3) impact on foreground and middleground viewing attention of Forest Service visitors, 4) impact to the recreational use of the area because of its scenic splendor, and 5) impact on scenic quality from the Blackfoot Valley, Bob Marshall and Scapegoat Wildernesses, and the passes leading to the upper Blackfoot Valley.

Recreation and Wilderness

Impact of Mine Development on Recreational Opportunities

Recreation concerns centered on the potential loss of recreational opportunities. Specific issues include short- and long-term impacts to developed and dispersed recreational opportunities in the immediate area. These include snowmobiling, outfitting, guiding, hunting, fishing, hiking, skiing, campground use, and general tourism. Other concerns focus on direct impacts to recreation on the Blackfoot River and possible water degradation. Concerns regarding indirect or secondary impacts were voiced by individuals concerned about the influx of people to the area. Impacts to recreational opportunities for future generations was also voiced as a concern.

Impact of Mine Development on Illegal Recreational Activities

A small number of individuals had concerns regarding the impact of the mine and the associated increase in population on illegal activities such as poaching, illegal harvests of bull trout, snowmobiling in the Bob Marshall and Scapegoat Wilderness Areas, etc..

Impact of Mine Development on Wilderness

These concerns include the impacts of the mine on the Bob Marshall and Scapegoat Wilderness ecosystems. Specific concerns include the impact of lights, blasting, and noise on the solitude of the areas. Other issues include the impact to wildlife migration, populations, and distribution in and around the Bob Marshall and Scapegoat Wilderness Areas.

Socioeconomic

Impact to Existing Tax Structure

Concerns include impacts to the local, regional, and state taxes and taxpayers. Specific issues included 1) impacts on individual and corporate taxes, including taxes of landowners that hold a majority of the land in the area, 2) impact on tax revenues at the local and state levels, 3) impact to tax burdens on retired peoples in the area, 4) long-term impacts to taxpayers after premature or scheduled cessation of mining, and 5) impacts of highway relocation on taxpayers.

Impact of Short Term Economic Gain vs. Long Term Economic Sustainability

Concerns focus on long-term impacts to the existing "sustainable" economy that is based on a clean river and abundant undisturbed recreational opportunities. Issues include 1) impacts to businesses and jobs created because of the Blackfoot River, terrain and overall beauty of the area, 2) impact of the mine's wage rate on local businesses, 3) impacts to local and regional businesses that rely on mining for success, 4) impact to tourism, 5) impact of mortgage life extending beyond mine life, and 6) impact of post-mining land use on economic sustainability in the future.

Impact of Mine Development on Job Rates and the Economy

Concerns include short- and long-term impacts to state and local employment rates and economy. Most of the issues focus on the positive impacts to employment and the economy in general. Concerns include 1) impacts to local non-mine workforces, 2) hiring of equitable numbers of locals and Montanans, 3) impact to the economy if gold prices fall and mining ceases, 4) impacts to cost of living in Lincoln and surrounding communities, 5) contingencies for boom/bust scenario, 6) economic impact on the futures of local teenagers, 7) economic impact to other land-reliant industries such as ranching and timber, and 8) impact on local economy from relocation of Highway 200.

Impact of Mine Development on Property Values

Concerns are related to short- and long-term impacts of mine development on property values. Key concerns relate to the 1) impact on general property values locally and throughout the region, 2) long-term impacts to property values for recreation, and 3) impacts on land values and the resulting changes in land uses.

Impact of Mine Development on Housing

Key issues focus on the short- and long-term impacts to housing in Lincoln and surrounding communities. Housing issues include 1) impacts on housing availability in Lewis and Clark, Missoula, and Cascade Counties, 2) distribution of the work force, 3) impact to the overall housing market and house values, 4) impact of available housing on in-migrating labor and the resulting impact from temporary housing, and 5) impact of transient "job hunters" on public lands and facilities.

Impact of Mine Development on Schools and Education

School issues relate primarily to overcrowding and the quality of education received. School-related issues include 1) impacts of mine-related taxes on schools, 2) impact of royalties on the state school system (school trust), 3) impacts of in-migrating students on the class size/teacher ratios, 4) impacts to public schools that exceed their capacity as a result of in-migrating population, 5) impacts to school operating costs, and 6) impacts to school bussing needs.

Impact of Mine Development on Infrastructure and Services

These concerns include the short- and long-term impacts on infrastructure and services in Lincoln and surrounding communities, including Helena. Specific issues include short- and long-term impacts to roads, bridges, sewage, electrical, and other infrastructure in Cascade, Powell, Missoula and Lewis and Clark Counties. Issues related to services include medical and fire emergency response, law enforcement, health care facilities, electric and gas service, parks, library services, wastewater treatment, and sanitary services.

Impact of Mine Development on Social Conditions

Concerns include the ethical behavior of the in-migrating population and overall social health of Lincoln and the surrounding area. More specific concerns include 1) alcohol and drug abuse in Lincoln and the surrounding area, 2) deterioration of community cohesiveness should a polarity

develop, 3) increased violence toward women, and 4) increased crime rates (including vandalism, burglaries, rape, drug abuse, etc.).

Impacts to Governmental Resources

Concerns are related to short- and long-term impacts of mine development on city, county, state, and federal agencies. Specific concerns originate from every agency and relate to the need for additional personnel, equipment, maintenance facilities, monitoring and enforcement, administration, and the budgets to fund them.

Land Use and Access

Impact to Land Use

Primary concerns focus on impacts to existing land uses resulting from leakage-related contamination or uncontrolled releases of hazardous materials. Specific issues relating to current land use include 1) the impact of contamination on downstream land uses, and 2) impact on development in the valley. Issues relating to future land use include 1) impact of post-mining pit water quality on proposed land use, 2) validity of the proposed post-mine land use, and 3) impact of post-mining land use on wildlife and habitat development.

Impact to Public Land Access

Major issues include access to private, state, and federal land. Specific issues include 1) access to currently protected, remote habitat, 2) Wilderness access and the public's use thereof, 3) access to Copper Creek Road, and 4) access to the post-mining pit area.

Transportation

Impact to Highway Integrity

Concerns include the impact of direct and indirect mine-related traffic on the integrity of county and state roads, bridges, and other transportation facilities. Other closely related issues include 1) ability of maintenance crews to attend needed facilities, 2) impacts to equipment, supplies, and storage, 3) impact to level of service classifications.

Impacts to Traffic Flow and Safety

Concerns include short- and long-term impacts of the mine on traffic flow and safety along county and state roads. Specific issues include 1) impact to wildlife mortality rates on the highway, 2) impacts associated with materials, reagent, and explosives transportation on Highways 200 and 279, 3) maintenance of highway design standards, 4) impact of blasting on traffic flow and safety, 5) impact of safety features on Hwy 200 such as acceleration and deceleration needs, left-turn storage, sight visibility, and intersections, 6) changes in accident rates along highway realignment, 7) impact to pedestrian and driver safety in Lincoln, and 8) state liabilities associated with hazardous waste transportation.

Impact of Highway Relocation

Issues include 1) impacts to residents in the Blackfoot and Hogum Creek drainages from relocation of the highway, 2) increased maintenance requirements, 3) impacts to Aspen Grove campground, and 4) impacts to the relocated highway from infiltration activities.

Hazardous Materials*Hazardous Materials*

Major concerns relate to the transport, production, and disposal of hazardous materials at the mine. Specific issues include 1) impacts to ground and surface water from hazardous waste spills or leaks, 2) state liability under CERCLA and CECRA, 3) types of hazardous materials, their transport, generation and disposal methods, and 4) the risk of spills.

Emergency Response*Emergency Response*

Concerns focus on the transportation and storage of hazardous materials and the capability to respond to a potential spill. Specific issues include the impact to the Lincoln Volunteer Fire Department and its capability to respond effectively, and the potential impacts of inadequate responses.

Property Rights*Impact of Mine Development on Local Property Rights*

Major issues relate to property rights of local and downstream landowners. Concerns include 1) impacts to the rights of cabin/land owners on state lease land within and near the mine property, and 2) consequences of unresolved leases and rights-of-way for land on which the operation or realigned highway is located.

Water Rights*Impact of The Mine on Upstream and Downstream Water Rights*

Concerns are related to short- and long-term impacts on water rights of upstream and downstream water users. Specific issues include 1) impact of contaminated surface and ground water on downstream water rights, 2) impact of stream flow changes on downstream water rights, and 3) effects on downstream hydropower water rights.

Health And Safety*Impact of Mine on Local Health and Safety*

Concerns focus on short- and long-term health and safety of residents and guests in Lincoln and the surrounding area. Specific concerns include 1) increased highway traffic and pedestrian safety, 2) impacts of the operation and its chemical use or contamination on the general health of the population,

including cancer and asthma concerns, 3) impact of electromagnetic radiation on residents under or near the new powerline.

Environmental Policy and Planning

Miscellaneous Policy/Planning Concerns and Impacts

Concerns in this section often refer more to agency policies. Primary concerns focus on the need for adequate bonding. Specific concerns include 1) the corporate environmental record and financial status, 2) standards and the decision making process, 3) contingencies for environmental protection, 4) bond calculation alternatives, 5) constitutional rights of Montanans, and 6) interagency coordination in planning and oversight.

Geotechnical Engineering

Impact of Catastrophic Events on Mine Stability

Major issues relate to the performance of geotechnical design components during and after a catastrophic flood or seismic event. Concerns include 1) impact of an earthquake, flood, or other catastrophic event on facility and open pit stability, 2) impact of reclassified seismic ratings on design requirements and performance, and 3) stress impacts on liner leakage rates.

Impact of Geotechnical Failures

Issues include general stability of open pit and mine facilities. Concerns include 1) geotechnical failures of facilities (i.e. rock seam opening, concrete cracking, liner leaks, etc.), 2) failure and contingencies for the leach pads, ponds, and rock piles, 3) ability to repair liners under partial or full loads, 4) impact of seasonal variations on liner integrity during installation and operation, 5) feasibility of crushing and leaching system, 6) timeframes from leakage to significant contamination, and 7) impacts to the environment from repair activities.

Impact of Blasting on Surrounding Area

Concerns include the local and regional impacts of blasting on structures and water wells.

Mine and Process Engineering

Process Impacts

Concerns focus on the potential for contamination from operational processes. Specific concerns include 1) process controls to minimize leakage, 2) impact of blending ores, 3) water treatment in perpetuity, and 4) disposal of surplus water at the land application sites.

Risk Assessment

Risk Assessment

Concerns include the overall risk associated with various parts of the operation. Concerns include 1) risk of environmental degradation caused by design flaws or catastrophic events, and 2) risk of long-term environmental degradation from reclamation failure.

Monitoring And Enforcement

Impact of Monitoring and Enforcement Programs

Issues focus primarily on a need for operational and post closure monitoring. Specific concerns include 1) monitoring and contingencies for ARD generation, 2) monitoring of environmental conditions, 3) short- and long-term monitoring enforcement, 4) determination of significance for leaks and other problems during operation, 5) monitoring of leach pad and liner for leakage and determination of liability in the event of failed compliance with standards and policy, 6) seasonal effectiveness of proposed BMP's and compliance with NPDES/MPDES requirements, 7) treatment plant and land application monitoring, 8) mixing zone monitoring and enforcement, 9) ground and surface water monitoring, and 10) air quality monitoring. Other concerns include overall enforcement, including who would be enforcing, how often, and how budgets would impact monitoring and enforcement efforts.

Quality-Based Attributes (i.e. quality of life, sense of place, spiritual bonds, etc.)

Impact of the Mine on Quality-Based Attributes

Concerns relate to short- and long-term impacts on the quality of life for local and regional residents as well as visitors to the area. Specific concerns include 1) impacts to rural lifestyles, 2) quality of visitors' experiences, 3) impact to intrinsic values, 4) changes to the area's character -- including the Blackfoot River, and 5) impact to the area's spiritual attributes.

Alternatives

Alternatives Identified for Consideration

Alternatives to the proposed action include modified designs, facility locations, or implementation plans. Specifically, a 1000-year storm event was suggested as a basis for the hydrologic analysis, as well as alternative bond calculations, reclamation procedures, and development scenarios tied to the market price of gold. Other alternatives include 1) establishment of a trust fund for environmental improvements in the Blackfoot drainage, 2) triple or thicker liners under all facilities, 3) batch neutralization, 4) in-situ mining, 5) development of a pilot program to test technologies, 6) the use of non-nitrate based blasting agents, 7) a community monitoring plan, 8) the implementation of a glass and metal recycling program, 9) pit backfilling, 10) operational limitations, and 11) mine life extensions.

Cumulative Impacts

Cumulative Impacts of Developments and Activities

Sources of potential cumulative impacts include 1) development of other SPJV properties (Keep Cool and Seven-up Pete), 2) other mining projects, including historic mining in the Blackfoot drainage, 3) Superfund cleanup efforts and alternatives on Silverbow Creek and the Blackfoot and Clarks Fork Rivers, 4) MDT's long-range construction plans, and 5) timber harvests. Other cumulative activities include 1) Bouma Post Yard, 2) old landfill, 3) prescribed burns, 4) road salting, 5) highway maintenance, 6) mine exploration, 7) rural subdivisions, 8) Lincoln sewer system, 9) treatment plants, 10) firewood gathering, and 11) horseback, motorcycle and snowmobile riding.

Miscellaneous

Miscellaneous

Miscellaneous concerns include 1) the impact to the biological sustainability of the regional watersheds, 2) the suitability of the Blackfoot valley to support a mine, and 3) the ethical implications of mine development for gold extraction. Other issues include applicability of the Bevill Rulings and the overall impact to supplies of fossil fuels.